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RECENT WORK BY ACADEMICIAN P. A. REBINDER

S. B. Shevelev

On the occasion of the 28-31 October 1949 meeting of the Department of Chemical Sciences, Academy of Sciences USSR, held together with the Academy of Sciences Georgian SSR at Tbilisi, Academician Rebinder presented three reports. The first report, "Physicochemical Methods for Increasing the Efficiency of Disintegration of Solid Materials Into a Finely Dispersed State," presented at the Institute of Mineral Crude Materials, dealt with new relationships and methods applied in the wet and dry crushing, powdering, and grinding of silicates and cement clinker. The work in question was done at the Institute of Physical Chemistry, Academy of Sciences USSR, and also under Rebinder's participation at the Cement Scientific Research Institute, the Highway Scientific Research Institute, and other institutions.

The report "New Methods for Investigating the Elasticoplastic Viscous Properties of Disperse Systems and of Solutions of High Polymers" was presented by Rebinder at the Institute of Chemistry, Academy of Sciences Georgian SSR. This report dealt with a system of constants which characterizes quantitatively and with a sufficient degree of completness the structural and mechanical properties of colloidal aggregates and solutions of high polymers. A treatment of relationships governing reversible sol-gel transformations was included. The report was based on work done by the author and his collaborators at the Institute of Physical Chemistry, Academy of Sciences USSR, and at the Chair of Colloid Chemistry, Moscow State University. After the report, Rebinder conducted a discussion on methods for determining structural and mechanical properties of colloidal systems and on the properties of clay suspensions which are used in oil drilling.

A paper "Physicochemical Problems of Fatigue and Creeping of Solid Metals" was read by Rebinder at the Institute of Metals and Mining of the Academy of Sciences Georgian SSR. In this paper, Rebinder reviewed recent work done at the Institute of Physical Chemistry, Academy of Sciences USSR in this particular

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field which is also being developed at present by the All-Union Institute of Aviation Materials (VIAM), the Institute of Mechanics of the Academy of Sciences Ukrainian SSR, and other institutes. Some of the results of the work in question indicate that all traces of surface active compounds (as, for instance, lubricants) must be removed thoroughly from the surrounding medium and from the surface of structural details to prevent a sharp lowering of the fatigue strength and appearance of creeping.

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